

# Self–Other Agreement in Job Performance Ratings: A Meta-Analytic Test of a Process Model

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This meta-analysis explores agreement in self- and supervisory ratings of job performance ( $k = 128$  independent samples). It suggests a 3-stage model of the rating process and reviews the empirical evidence for the relevance of each of these 3 stages to an understanding of agreement in ratings. The proposed 3-stage model serves as the guiding rationale for the examination of an extensive set of variables that moderate rater agreement. Results are reported for 2 indicators of rater agreement (correlational and mean-level agreement). Self-supervisor ratings yielded an overall correlation of .22 ( $\rho = .34$ ;  $k = 115$ ;  $n = 37,752$ ). Position characteristics and the use of nonjudgmental performance indicators were the main moderators. Leniency in self-ratings is indicated by higher mean levels of self-ratings compared with supervisory ratings. Within Western samples, performance self-ratings showed leniency ( $d = 0.32$ ,  $\Delta = .49$ ;  $k = 89$ ;  $n = 35,417$ ) dependent on contextual features, scale format, and scale content.

**Keywords:** self-ratings, job performance, correlational rater agreement, leniency in self-ratings, meta-analysis

Performance appraisals serve a variety of purposes in organizations such as making administrative decisions, satisfying legal requirements, or assessing training needs. The focus of this article is on self-ratings. Trends in performance evaluation have emerged that led to a growing importance of self-assessment, including the introduction of management systems in which self-evaluations are used as a basis for negotiating goals (e.g., “Management by Objectives”; Drucker, 1954), or the use of appraisals for purposes of employee development (Murphy & Cleveland, 1995). As self-management generally becomes an increasingly relevant demand (e.g., Frayne & Geringer, 2000), so does one of its core components, appropriate self-evaluation (Bandura, 1986; Cervone, Mor, Orom, Shadel, & Scott, 2004).

Self–other agreement in ratings warrants specific consideration due to the effects it has on the targets’ attitudes and behaviors. For example, according to Bass and Yammarino (1991), the degree of self–other congruence in ratings may be related to job performance. This hypothesis has been confirmed by a number of authors (Atwater, Ostroff, Yammarino, & Fleenor, 1998; Atwater & Yammarino, 1992; Furnham & Stringfield, 1994) and triggered a debate as to whether self–other congruence itself should be used as an assessment measure in predicting effectiveness on the job (e.g., Fletcher & Baldry, 2000; Randall, Ferguson, & Patterson, 2000). A related idea is that making a person aware of discrepancies between his or her self-view and the views of others can be a source

of insight (Kwan, John, Kenny, Bond, & Robins, 2004; London & Smither, 1995; Smither et al., 1995) and can help the targets increase their effectiveness on the job (Leslie & Fleenor, 1998; Smither, London, & Reilly, 2005).<sup>1</sup> Complementing these findings, research has accumulated evidence that “discrepant feedback,” that is, feedback that results if others’ ratings are less favorable than self-ratings or if the pattern of high and low ratings diverges from self-reports, may lead to negative outcomes. Such unwanted consequences include negative beliefs about the accuracy and usefulness of ratings as well as generally negative affective reactions (Brett & Atwater, 2001), reduced satisfaction with the appraisal, lower acceptance of evaluation procedures (Brett & Atwater, 2001; Farh, Werbel, & Bedeian, 1988; Halperin, Snyder, Shekel, & Houston, 1976), and reduced willingness to participate in career planning (Wohlers, Hall, & London, 1993). Given the psychological implications of “discrepant feedback,” factors that systematically influence the mean difference between self and other ratings deserve much interest.

Research in performance ratings continues to be a very active field. Many factors that may determine the properties of performance ratings have been examined, and interest in the self as a source of appraisal is still growing. These numerous findings call for an integrating overview of the empirical evidence accumulated and, more importantly, for an organizing theoretical framework. To help research and practitioners interpret self–other discrepancies in ratings, it is worthwhile to review the influence that study

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<sup>1</sup> Outside of research in industrial and organizational psychology, the level of self–other congruence has been related to psychological adjustment (Kwan et al., 2004). In an experimental setting, Kwan et al. (2004) found that self-enhancement (e.g., leniency) was positively correlated with self-esteem but negatively related to task performance.

and sample characteristics, as well as features of the context and the appraisal instrument, have on the outcomes of ratings.

### Purpose of the Present Meta-Analysis

We seek to make four important contributions to the existing literature in the present meta-analysis. First, we suggest a three-stage model of the rating process and review the empirical evidence for the relevance of each of these three stages to agreement in ratings. The proposed model organizes moderator variables into a theoretical framework. A taxonomy of moderator variables is presented, and the influence of moderators is related to the three stages of the rating process. Second, we integrate results for both mean-level and correlational agreement between self- and supervisory ratings. The two indicators of rater agreement, effect size indexes  $r$  and  $d$ , have been reported to be empirically independent from each other (Warr & Bourne, 1999). Presenting moderator results for both indicators of rater agreement in a single study allows for an immediate comparison of results and their discussion from the perspective of a common theoretical framework. Third, we examine in the present meta-analysis a comprehensive set of contextual factors that potentially moderate self–other agreement, some of which have not been included in meta-analytical research before. Fourth, the database of primary studies has grown substantially, which especially warrants an updated estimate of leniency in self-ratings (see Harris & Schaubroeck, 1988).

### Measures of Agreement in Performance Ratings

The body of research we examined assesses correlational agreement by correlating employees' self-ratings for a given dimension of performance with their supervisors' ratings. Our study links self-ratings to supervisory ratings rather than to other rating sources for several reasons: Cumulative evidence suggests that supervisors are the most reliable source of job performance ratings (Conway & Huffcutt, 1997; Viswesvaran, Ones, & Schmidt, 1996), supervisory ratings are likely to be particularly important for job incumbents, and are in fact more strongly related to performance as measured by external criteria (promotions, salary, etc.) than are ratings from other sources (e.g., Atkins & Wood, 2002; Becker & Klimoski, 1989; Beehr, Ivanitskaya, Hansen, Erofeev, & Gudunowski, 2001). Analyzing mean difference scores as a second measure of rater agreement, our study considers self-ratings to be *lenient* to the degree that self-raters overrate their own performance relative to their supervisors; that is, self-raters tend to rate it at higher mean levels. (The term *leniency* is used here as it is also in primary research articles. Note, that *leniency*, as a common rater bias, refers to a different phenomenon, namely that of raters using scales differently when rating the same group of targets.)

### Previous Research

Self-evaluations have been examined in three previous meta-analyses. The convergence of self-ratings with supervisory ratings of job performance has been studied in two previous analyses (Conway & Huffcutt, 1997; Harris & Schaubroeck, 1988). The agreement of self-evaluations with a variety of performance criteria has been studied in a third meta-analysis (Mabe & West, 1982).

*Mabe and West (1982).* Mabe and West (1982) analyzed a rather comprehensive set of factors that may moderate the relationship between self-evaluations and relevant criteria (overall  $r = .31$ ). They grouped moderators into two broad categories: person variables (intelligence, achievement status, locus of control) and measurement conditions. Four of the measurement conditions accounted for most of the variance in the validities of self-evaluations (the expectation that self-assessments will be validated, social comparison instructions, experience with self-evaluation, and instruction of anonymity). We suggest that reexamining some of these moderator hypotheses may be worthwhile for two reasons. First, the set of studies that Mabe and West analyzed makes it questionable whether their results are applicable to the area of job performance. Mabe and West integrated findings for various subject populations (including, e.g., college students [81%], managerial samples, and psychiatric patients) as well as for various performance categories (e.g., scholastic ability, technical or physical skill, intelligence, job interview performance) and criterion measures (objective tests, grades, and ratings). The present study is confined to samples in which both self-evaluation and criterion measures consist of *ratings* of performance and studies that are limited to a specific context, namely questionnaire-based ratings of performance on an actual job. Second, unlike Mabe and West (1982), we estimated leniency in self-evaluations and also tested whether some of their moderator hypotheses apply to mean difference scores as indicators of rater agreement.

*Harris and Schaubroeck (1988).* The Harris and Schaubroeck (1988) meta-analysis found an uncorrected correlation of .22 ( $\rho = .35$ ) between self- and supervisory ratings of job performance. The authors examined three moderators of rater agreement, job type and two variables pertaining to the format of ratings: dimensional as opposed to global performance and behavioral as compared with traitlike scale labels. Only job type moderated correlational rater agreement. We seek to contribute to the existing literature in that we present a theoretical framework that guides the selection of a (more) comprehensive set of contextual influences on correlational rater agreement. The meta-analysis of Harris and Schaubroeck (1988) is the only one in which leniency in performance ratings has also been examined. A mean weighted difference between self- and supervisor ratings of  $d = 0.70$  indicated that self-ratings were more than half a standard deviation higher than mean supervisory ratings. But given the small number of samples in this meta-analysis (18 independent samples), meta-analytical evidence for leniency in self-ratings is comparatively weak. We not only provided an improved estimate of overall leniency in self-ratings but also conducted moderator analyses.

*Conway and Huffcutt (1997).* In a more recent study of multisource performance ratings, Conway and Huffcutt reported estimates of rater convergence among self-, supervisor, peer, and subordinate appraisals. Conway and Huffcutt provided estimates of within-source rater reliabilities as well as estimates of between-source validity for ratings made from different perspectives. They found self–other correlations to be rather low, ranging from .14 to .22, and reported results for three moderator variables (managerial position, complexity level, interpersonal vs. cognitive dimensions). As in earlier research, only job type moderated self-supervisor agreement: Correlations were lower for managerial and higher complexity jobs. Although previous research showed that job type is a key moderator for interrater correlations, we put

forward an examination of its influence on mean difference scores. Additionally, we try to disentangle the effects of job complexity and managerial position.

### *Theoretical Framework and Hypotheses*

The social-cognitive processes involved in performance rating have been described by several authors (Campbell & Lee, 1988; DeCotiis & Petit, 1978; DeNisi, Cafferty, & Meglino, 1984; Feldman, 1981; Hauenstein, 1992; Landy & Farr, 1980). These models describe and differentiate the information-processing tasks involved in the collecting and integration of cues. For instance, the process model presented by Landy and Farr (1980) considers observation and retrieval/judgment as two major cognitive stages in performance appraisal, and according to Feldman (1981), performance ratings are the outcome of a dual process (evaluation and decision making) that includes four major cognitive tasks (attention, categorization, recall, and information integration). In accord with more recent approaches (e.g., Murphy & Cleveland, 1995), we argue that purposeful behavior should also be considered in order to understand the outcomes of appraisals. We build on previous work and contribute in that we integrate various perspectives into three cognitive stages of the rating process: the collecting of cues, the selection and integration of cues (judgment), and communication. Furthermore, we decided on a taxonomy of factors that influence the outcomes of the rating process, which classifies relevant factors into five categories: job type and position characteristics, rater and ratee characteristics, properties of the scales, including their format and content, conditions of report, and cultural background (for an overview of relevant factors, see also Murphy & Cleveland, 1995; Murphy & DeShon, 2000). We identified moderator variables that are representative of the five categories of our taxonomy but limit our discussion to those that are likely to be available in primary research articles. Figure 1 displays a graphical summary of the five-category taxonomy of moderators (top row of Figure 1) as well as the three cognitive stages of the rating process (bottom row). Moderators from each of the taxonomy's categories in the top row of Figure 1 exert their influence at specific stages of the rating process. We believe that the proposed three-stage process model is suited for integrating and summarizing various mechanisms that explain why contextual influences serve as moderators of rater agreement. In the following, mechanisms of moderation are discussed in detail.

### Stage I: The Collecting of Cues

We conceive of the collecting of cues for performance as the first stage of the rating process. Cues can stem from the observation of behavior, work results, categorical or stereotype-based information processing (e.g., the ratee's position in the hierarchy), or from other sources (e.g., previous ratings, feedback from other raters). We avoid the term *observation* that has been used in other models (Landy & Farr, 1980) because we wish to point out that observation of the target is only one source of input into the rating process. In fact, performance ratings are mostly memory based. At this first stage of the rating process, low or high agreement between two raters' (later) judgments can be attributed to variables that affect the nature of cues for performance that serve as input into the rating process.

The most important feature of these cues is their ambiguity, which should mainly influence self-supervisory correlations. The ambiguity of cues is lower if work results are well defined and easy to observe (Wherry & Bartlett, 1982). Accordingly, we examined the degree to which work environments are standardized (i.e., the distinction of blue-collar and white-collar jobs) and job complexity as moderators of rater agreement (Conway & Huffcutt, 1997; Harris & Schaubroeck, 1988). Other factors include the rater's opportunity to observe (Rothstein, 1990), the rater's motivation to observe, and how representative the observed behavior is of job performance. (We limited our analysis to position characteristics because a preliminary literature search revealed that other factors would scarcely be available in primary articles.) All of these factors should affect conceptual disagreement between raters and rating difficulty (Cheung, 1999; Viswesvaran, Schmidt, & Ones, 2002). We assessed job complexity in two different ways. First, we retrieved job complexity information from the Occupational Information Network (U.S. Department of Labor, 2008) to differentiate five levels of job complexity according to the amount of preparation and experience needed ("ONET job complexity"; see the Method section). Second, we coded educational level using information on educational degrees reported for the samples (comparing samples with 80% master's degrees and higher degrees with samples with lower percentages of such degrees). This way, we could differentiate three levels of educational attainment: unskilled mostly blue collar, skilled mostly white collar, and highly educated samples with at least 80% master's degrees. Educational level can serve as a proxy for task complexity on the basis of the assumption

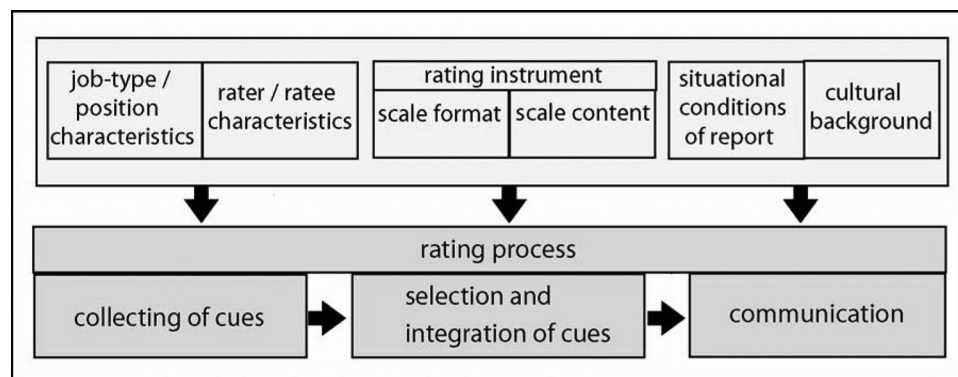


Figure 1. Taxonomy of moderators and process model of performance rating.

that the assignment of personnel aims for a match of job demands and educational level. Educational level is an indirect assessment of the intended construct, but it has the advantage that it can be coded with high reliability (cf. Gerhart, 1988). Moreover, we sought to make a stronger argument that managerial work may yield especially low rater agreement. Managerial positions are specific in several aspects, including a sometimes hard to observe association of work behavior and results, a rather great importance of interpersonal behavior, and the achieving of results by working through others. We tried to disentangle the effects of managerial position and job complexity to determine whether managerial samples truly yield lower self–other agreement.

*Hypothesis 1:* Correlational agreement is higher if samples stem from more standardized work environments (blue-collar vs. white-collar samples).

*Hypothesis 2:* Correlational agreement is lower for samples with high (ONET) job complexity.

*Hypothesis 3:* Correlational agreement is lower for samples with higher levels of education.

*Hypothesis 4:* Correlational agreement is lower for managerial samples even when ONET job complexity/level of education is controlled for.

The second important mechanism that is related to the first stage of the rating process pertains to the assignment of the stimulus to a category and later recall of information that is also likely to be category based (Feldman, 1981). An example of raters relying on heuristics in performance ratings is provided by research on performance expectations or the performance-cue effect (Baltes, & Parker, 2000; Martell, & Leavitt, 2002; Staw, 1975) that may cause response bias during later ratings (Martell, Guzzo, & Willis, 1995). Position characteristics (educational level or managerial position) may provide cues that give rise to category-based assessment. In a rather exploratory way, we examine the effects that position characteristics have on mean difference scores.

## Stage II: Selection and Integration of Cues

During actual appraisals, raters have to reach a judgment on the basis of the retrieval of information regarding the targets' behavior on the job. Cues for performance have to be selected and integrated into an assessment of the target. At this second stage, interrater agreement depends on (a) whether raters identify the same cues to be relevant and (b) whether they use these cues in the same way (note the parallel to probabilistic models of accuracy in social perception research, e.g., Goldstein, 2004). The rating instrument can now be considered a major intervening variable.<sup>2</sup> Relevant properties of the rating instrument include both scale *format* and scale *content*. Independent of the cues that raters recall regarding performance, stimuli and clues provided by the rating instrument may influence rater behavior, the extent to which raters lack a common understanding of the behavior they are to evaluate, and use of idiosyncratic or implicit theories (Kenny, 1991).

## Properties of the Rating Instrument and Correlational Agreement

*Scale format and correlational agreement.* Using *behaviorally defined scales* (i.e., items that provide concrete descriptions of behavior—see, Smith & Kendall, 1963—or behaviorally anchored rating scales) and using *nonjudgmental performance indicators* may partly eliminate conceptual disagreement between sources and reduce the level of inference involved in ratings. In the case of nonjudgmental performance indicators (performance criteria that are independent of human judgment, e.g., time to complete a task, financial indicators<sup>3</sup>), ratings not only involve lower levels of inference, but can also be rendered verifiable. At minimum, such ratings may appear more verifiable to raters, and respondents may be more reluctant to distort ratings, as this involves the risk of losing face through a potential or imagined validation of ratings. Another approach to explaining low self–other correlations draws on the idea that self-raters have no clear reference standard for making their judgments. More specifically, self-raters lack information about relevant comparison standards or choose a comparison standard other than the one intended by the designers of the appraisal system. In summary, the following hypotheses were examined regarding the influence of scale *format*:

*Hypothesis 5a:*<sup>4</sup> Correlational agreement is higher if behaviorally defined rating scales are used.

*Hypothesis 6a:* Correlational agreement is higher if performance indicators are nonjudgmental.

*Hypothesis 7a:* Correlational agreement is higher if scales are defined in relative terms or instruct subjects to consider a comparison group.

*Scale content and correlational agreement.* The assumption that scale content influences correlational agreement in ratings was tested through comparing (a) *overall* and *dimensional* performance, (b) ratings for *performance* and *traitlike* scale labels (i.e., scale labels that represent characteristics of a person that are rather stable over time and are likely to be thought of as “traits” by laypeople, such as “outgoingness,” “creativity,” “self-confidence,” and “action orientation”; see also Harris & Schaubroeck, 1988), as well as (c) ratings for task and contextual performance (to make this distinction, we refer to the work of Borman & Motowidlo, 1993 and Motowidlo & Van Scotter, 1994). Central to the related

<sup>2</sup> Here, rater and ratee characteristics (e.g., gender, age, intelligence) or also rater training would come into play. We do not discuss the influence of these variables as the information provided in primary field research articles did not allow us to examine any hypothesis related to them.

<sup>3</sup> Ratings are always judgments; the distinction made here refers to the performance indicators that ratings are provided for. In a study by Farh et al. (1988), for instance, research faculty provided self-ratings for seven areas of performance, one of which read “journal publications” on a scale ranging from 1 (*poor*) to 5 (*outstanding*). Schrader and Steiner (1996) reported ratings for dimensions such as “monthly transaction rate,” “total sales,” or “hourly productivity” on a 9-point scale ranging from 1 (*very poor*) to 9 (*very good*).

<sup>4</sup> Note that corresponding hypotheses regarding the same moderator variable for index *r* and index *d* are marked with letters *a* and *b*.



hypotheses is a potential reduction in conceptual disagreement and the level of inference. Even if perceptions of performance in specific dimensions differ, the overall impression of an employee may reach higher levels of agreement. Task performance includes explicit expectations of job incumbents, and job incumbents are more likely to receive feedback concerning their task proficiency from supervisors. On the part of the supervisors, ratings for contextual performance may be less accurate. Conway (1999) reported that supervisors tended to pay less attention to contextual performance in targets than colleagues did and are likely to have less opportunity to observe related behavior in their subordinates. Finally, for self-reports of personality, self-deceptive tendencies apply and may add to the subjective selecting and weighting of performance-relevant cues that constitute conceptual disagreement.

*Hypothesis 8a:* Correlational agreement is higher for ratings of global/overall performance as compared with dimensional ratings.

*Hypothesis 9a:* Correlational agreement is higher if task performance is rated rather than contextual performance.

*Hypothesis 10a:* Correlational agreement is lower if traits (personality characteristics) are rated rather than (contextual and task) performance.

*Scale length and correlational agreement.* Psychometric theory predicts that instrument length (i.e., the number of items integrated into a final measure) should be positively related to reliability, and thus to the validity of ratings. If raters provide repeated evaluations by responding to a greater number of items, then random response error should decrease, and so should conceptual disagreement, as a larger number of items better describe the intended construct. Testing this prediction is of interest because some researchers have suggested that it does not necessarily hold for ratings of job performance (Viswesvaran et al., 1996).

*Hypothesis 11:* Correlational agreement is higher for aggregate than for single-item measures.

### *Properties of the Rating Instrument and Leniency*

A case of systematic bias in ratings is specific to self-ratings (e.g., self-deception), which is motivated by self-protective or self-enhancement needs (Jones, 1990). Moreover, leniency effects can be attributed to impression management behavior, which arises if respondents consider the possible consequences that their ratings may have. These two mechanisms (self-deception and impression management) cannot easily be separated and contribute jointly to the outcomes of appraisals (Tetlock, & Manstead, 1985). We examined properties of scale *format* that determine how well scales are defined and properties of scale *content* that determine the perceived importance of ratings, and the extent to which ratings pose a threat to a positive view of the self.

*Scale format and leniency.* Whether scale properties that render scale constructs more or less “well-defined” (see Farh & Dobbins, 1989) moderate leniency in self-ratings can be examined by (a) comparing self-ratings for *behaviorally defined* scales with scales for which nonbehavioral item labels (e.g., “leadership abil-

ity”) are used and by (b) comparing ratings for *nonjudgmental* as opposed to judgmental performance indicators. Ambiguity in scale labels should decrease self–other agreement, as self-raters may select and weigh cues for good performance more freely and in ways that help maintain a positive view of the self. Moreover, social comparison scales or instructions are predicted to influence leniency in self-ratings. When asked to rate their job performance, individuals may select a frame of reference that helps them to control the psychological implications that social comparisons have.

*Hypothesis 5b:* Leniency in self-ratings is lower for behaviorally defined scales.

*Hypothesis 6b:* Leniency in self-ratings is lower for nonjudgmental performance indicators.

*Hypothesis 7b:* Leniency in self-ratings is lower if scales are defined in relative terms or instruct participants to consider a comparison group.

*Scale content and leniency.* On the basis of the assumption that assessments of overall performance are more threatening to the self than evaluations of specific performance dimensions, we compared mean difference scores for ratings of overall/global performance with ratings for specific domains of behavior. In addition, the relevance of the dimension rated should influence leniency (Fox, Caspy, & Reisler, 1994). We examined such an effect by comparing ratings for *task- and contextual performance*. In work settings, task performance is generally of higher perceived relevance than contextual performance (Conway, 1999). Finally, ratings for traits as compared with performance constructs as scale labels are prone to stir self-deceptive responding and self-enhancement. Selective recall and weighting of information that is in accordance to the self-raters’ self-concept is likely to be pronounced if qualities are rated that are perceived as rather global and stable characteristics of a person rather than work results.

*Hypothesis 8b:* Leniency in self-ratings is higher for ratings of global/overall performance as compared with dimensional ratings.

*Hypothesis 9b:* Leniency is higher if task rather than contextual performance is rated.

*Hypothesis 10b:* Leniency is higher if traits (personality characteristics) are rated rather than task and contextual performance.

### Stage III: Communication

The third stage of the rating process refers to the notion that performance appraisals may incorporate goal-directed behavior. Having reached a judgment, raters have to communicate their judgments by means of a final rating. This can serve various goals such as being accurate, preventing trouble, or gaining rewards (e.g., Murphy & Cleveland, 1995). Accordingly, it can be expected that raters systematically distort their ratings, which will mostly concern the mean level of ratings (e.g., Aitkenhead, 1984). The impression management view (Jones & Pittman, 1982; Schlenker,

1980) is highly relevant for the communication stage of performance rating as it suggests that employees manage their self-presentation to serve personal goals and to avoid negative outcomes. Thus, different situational incentives ("situational conditions of report") should moderate leniency in self-ratings.

### *Conditions of Report and Leniency*

Three distinguishable rating purposes have been examined in primary research: administrative use, developmental feedback, and data gathered for research purposes. Therein, the hypothesis that administrative ratings show increased levels of leniency because they are tied to valuable outcomes and rewards was tested (e.g., Farh & Werbel, 1986; Harris, Smith, & Champagne, 1995; Jawahar & Williams, 1997). In contrast, if appraisals are part of developmental feedback sessions, low self-other agreement can be perceived as an undesirable outcome for several reasons. Targets may perceive low congruence in ratings as a loss of face. A possible reaction, then, is that targets present themselves in rather modest ways, or even try to guess others' views of themselves as targets. More positively, job incumbents make highly serious efforts to rate themselves as accurately as possible because they wish to learn from the outcomes of appraisals. Either of the two strategies should result in lower mean difference scores. Thus, we tested the following predictions regarding the effects of rating purpose.

*Hypothesis 12a:* Leniency in self-ratings is higher if ratings are made for administrative rather than for research purposes.

*Hypothesis 13a:* Leniency in self-ratings is lower if ratings are made for developmental rather than for research purposes.

If it is true that impression management concerns contribute to leniency in self-ratings, then the expectation that ratings may be validated should reduce leniency. In fact, empirical evidence exists that shows how a *possible disconfirmation* of self-descriptions decreases the favorability of self-ratings (e.g., Aitkenhead, 1984). Therefore, we also assessed whether a leniency effect emerges in self-ratings of job performance due to the expectation that ratings could be validated (in the context of performance appraisal, ratings can be validated either by comparison to other data, such as tests, or socially, via a feedback meeting). Note that Mabe and West (1982) found the expectation that self-reports may be validated to be among the four variables that best predicted *correlational* agreement between self-appraisal of performance and other criteria. We assessed whether this hypothesis holds for ratings of job performance and applies to mean difference scores.

*Hypothesis 14a:* Leniency in self-ratings is lower if targets expect their ratings to be validated.

Finally, an important contextual variable is the respondents' cultural background (Kwan et al., 2004; Seike & Takata, 1997; Yu & Murphy, 1993). In the following, a broad distinction of Western and Asian cultures is made to delineate the influence of collectivism and individualism on leniency in self-ratings. As Aycan and Kanungo (2002) stated, "in individualistic cultures, self-serving bias in performance evaluations occurs more frequently than 'self-effacement' or 'modesty bias', while the reverse holds true for

collectivist cultures" (p. 399; see also Kim, Park, & Suzuki, 1990; Ramamoorthy & Carroll, 1998). Power distance is correlated with collectivism; according to Aycan and Kanungo (2002), in high-power distance cultures, performance appraisals serve to reinforce the authority structure (Fletcher & Perry, 2002), and incentives for leniency do not exist (Blanton & Christie, 2003). With respect to performance ratings, Farh, Dobbins, and Cheng (1991) were the first to present empirical evidence that a modesty effect in self-appraisals may be observed in Asian societies. However, note that we do not wish to imply that a broad distinction of individualism and collectivism is sufficient to characterize differences in culture between "Eastern" and "Western" countries. The number of samples available does not allow for anything more than sorting countries into broad regional categories in order to test the influence of cultural differences. Within "Western" samples, we differentiated between U.S. and European samples.

*Hypothesis 15:* Samples from more individualistic societies will show increased levels of leniency.

### *Conditions of Report and Correlational Agreement*

So far, we have restricted our analysis of report conditions to systematic effects on mean difference scores. However, conditions of report, such as the purpose for ratings and expecting a validation of ratings, can also affect self-supervisory correlations. To the extent that administrative ratings are intentionally distorted, they should yield lower interrater correlations as compared with ratings that were collected for research purposes only. Developmental ratings, in contrast, may reflect demand characteristics that make in-agreement ratings desirable. In addition, the *accountability* of raters for their ratings decreases when ratings are made for research purposes (London, Smither, & Adsit, 1997), and random response error may increase due to low rater motivation if ratings are not of high relevance. Thus, we predicted administrative ratings to yield lower and developmental ratings to yield higher correlations as compared with research-based ratings. Therein, we consider research-based ratings to serve as a standard for comparison (informing respondents that ratings are collected for "research purposes only" is typically considered a means to reduce rater bias). Similarly, accountability and rater motivation are relevant for a potentially positive effect of the expectation that ratings may be validated.

*Hypothesis 12b:* Correlational agreement is lower if ratings are made for administrative rather than for research purposes.

*Hypothesis 13b:* Correlational agreement is higher if ratings are made for developmental rather than for research purposes.

*Hypothesis 14b:* Correlational agreement is higher if self-raters expect a validation of ratings.

In summary, we examined in the present meta-analysis a comprehensive set of contextual factors that potentially moderate self-other agreement. We suggest a three-stage model of the rating process and review the empirical evidence for the relevance of each of these three stages. The proposed model incorporates, unlike earlier models, the influence that situational conditions (i.e.,

goal-directed behavior) have on the outcomes of the rating process ("communication stage").

## Method

### *Literature Search Procedures*

Several literature search procedures were used to retrieve both published and unpublished primary studies. The first strategy involved examining the reference sections of previous research reviews and relevant primary research (Conway & Huffcutt, 1997; Harris & Schaubroeck, 1988; Hoyt & Kerns, 1999; Mabe & West, 1982; Viswesvaran et al., 1996). Second, computer searches of the PsycINFO database, the Business Source Premier database (EBSCO), the Educational Resources Information Center database (ERIC), and the Dissertations Abstracts Database (UMI ProQuest) were conducted. Keywords such as *performance appraisal* and *job performance* were combined with the terms *self-ratings*, *self-appraisal*, *self-evaluation*, and *multi-source ratings* to identify potentially relevant studies. Third, a manual search of the following journals was completed: *Academy of Management Journal*, *International Journal of Selection and Assessment*, *Human Relations*, *Journal of Applied Psychology*, *Journal of Occupational and Organizational Psychology*, *Organizational Behavior and Human Decision Processes*, and *Personnel Psychology*. Finally, authors known to have unpublished relevant data were contacted.

### *Inclusion Criteria and Intercoder Reliability*

To be included in the present analysis, research reports had to (a) contain a quantitative measure of agreement for self- and supervisory ratings—either a correlation coefficient or mean levels of ratings together with standard deviations—(b) be set in field settings (laboratory research studies were not included), and (c) include ratings made for job performance (data gathered in educational contexts or in the context of assessment centers were not included). Coding criteria were specified in a coding manual, and intercoder reliabilities were calculated before Heike Heidemeier coded the entire set of articles. To obtain an estimate of intercoder reliability, 10 randomly chosen research articles (40 coefficients) were selected for coding by a second person who held a doctorate degree in organizational psychology. On the basis of these 40 coefficients, intercoder reliabilities were calculated for all variables whose coding involved a judgment. These included the distinction of blue-collar and white-collar jobs (agreement percentage: 92%,  $\kappa = .75$ ); five levels of job complexity (Spearman correlation = .85,  $\kappa = .51$ ); the classification of overall, task, or contextual performance (84%,  $\kappa = .76$ ); and judgmental versus nonjudgmental ratings (91%,  $\kappa = .75$ ). Only the distinction of traits from other performance constructs (44% agreement) did not reach a satisfactory reliability level. Therefore, the two raters discussed each scale label for all studies and selected those for which both raters agreed that they represented personality characteristics.

### *The ONET-Based Measure of Job Complexity*

Two raters referred to the Occupational Information Network (ONET) database<sup>5</sup> to code all samples. Searches were run for specific occupations on the basis of job titles and other information

about the sample and the setting that was provided in primary articles. The database considers *educational requirements* as well as the amount of *training* (on-the-job training and/or vocational training) and *work experience* needed to categorize occupations into five levels of job complexity (Job Zones). Zone 1 occupations ("little or no preparation needed") sometimes require a high school diploma or a formal training course, whereas no previous work-related skill or experience is needed, and a few days to a few months of on-the-job training enable workers to do their jobs (examples include cashier, service station attendant). Zone 2 occupations ("some preparation needed") usually require a high school diploma and may require some vocational training (examples include metal worker, retail salesperson). Occupations in Zone 3 ("medium preparation") sometimes require a bachelor's degree and 3 or 4 years of apprenticeship or vocational training. Often workers must have passed a licensing exam and usually need 1 or 2 years of informal training and on-the-job experience (examples include municipal clerk, machinist). Most Zone 4 occupations ("considerable preparation") require a 4-year bachelor's degree and a minimum of 2–4 years of work-related skill, knowledge, and experience (examples include market research analyst, airline pilot). Finally, Zone 5 occupations ("extensive preparation") require a master's or even a doctorate degree and more than 5 years of experience (examples include surgeon, chief executive).<sup>6</sup>

### *Meta-Analytical Techniques*

The modified weighted least squares regression procedures implemented in the SPSS macros for meta-analysis, described by Lipsey and Wilson (2001), were used. A random effects model was used to calculate an overall effect size estimate that generalizes beyond the present set of primary research articles. The fixed-effects model was used for moderator analyses to generate results that permit inference on the present set of primary research findings (an approach that was used by previous meta-analyses as well and allows for immediate comparison of results). To deal with the fact that primary research articles often report more than one effect size, Cooper's "shifting unit of analysis" approach (Cooper, 1998, p. 152) was used. An intercorrelation table was used to inform the analysis about possible confounds within moderator variables. Finally, note that the unbiased estimator of index *d*, provided by Hedges (1981), was used to guard against biased estimates in cases of small sample sizes.

### *Corrections for Study Artifacts*

Corrections were made for two study artifacts, sampling error and error of measurement, correcting correlations, and mean dif-

<sup>5</sup> For more information on the ONET database, please visit <http://online.onetcenter.org>.

<sup>6</sup> We also coded the degree of independence that is characteristic of an occupation by referring to information retrieved from the ONET database on independence as "work style" and "work value" (thanks to an anonymous reviewer who suggested this). As it turned out that independence was highly confounded with job complexity and managerial position, we refrained from reporting the respective results, as they did not contribute new information.

ferences for both supervisor and self-rating unreliability (Hedges & Olkin, 1985; Hunter & Schmidt, 1990). For supervisory ratings, unreliability was estimated through the formulas presented in Hoyt (2000), that is, by combining coefficient alpha as an intrarater measure of scale reliability with an estimate of rater and dyadic bias obtained from generalizability studies (Hoyt & Kerns, 1999). Thus, the more problematic use of interrater reliabilities was avoided (see Murphy & DeShon, 2000; Schmidt, Viswesvaran, & Ones, 2000). Seventy-five of the primary research articles provided coefficient alpha for their scales (mean alpha = .85). This approach resulted in an average correction factor of .51 (which is actually close to meta-analytical estimates of interrater agreement [.52]; see Viswesvaran et al., 1996). For single items and for those cases in which alpha was not reported, the average correction factor of .51 was used. Rate–rate reliability was used to correct for unreliability in self-ratings. Rate–rate reliability assigns transient error (random variance from differences in mood, mental state, etc.) to measurement error, assuming that the level of performance remains constant throughout the period between test and retest. As test–retest periods were short, the resulting correlation between the two time points can be attributed to a lack of reliability rather than to a change in true scores of performance, that is, a lack of stability (Sturman, Cheramie, & Cashen, 2005). Again, the sample-size-weighted average of all rate–rate reliabilities was applied ( $r_{yy} = .74$ ;  $k = 30$ ) to replace missing information. Unreliability in difference scores depends on unreliability in self- and supervisory ratings and is adversely affected if correlations of both are high (Murphy & Davidshofer, 2005). As the correlation between self- and supervisor ratings is typically low, it should be adequate or even slightly conservative to correct mean difference scores using the product of unreliability in self- and supervisory ratings. Leniency in self-ratings may imply that self-ratings show range restriction, as self-raters tend not to use the full range of the scales presented to them. This effect is not considered to be in need of any artifact correction. Leniency in self-ratings is not sample based and is not an outcome of study design but reflects behavior that truly characterizes self-raters. As inference does not depend on corrections for attenuation, the reporting of results was based on sample-size-weighted coefficients; nonetheless, effect size estimates corrected for attenuation appear in Tables 1–3.

## Results

We located a total of 102 research articles that were published between 1955 and 2007 that reported information on 128 independent samples. For a total of 115 independent samples, self-supervisory correlations (504 correlation coefficients—note that most studies report several coefficients—with a total of 37,751 respondents), and for 89 samples, mean difference scores (altogether 437 mean difference scores; 35,417 respondents), were obtained. A majority (84; 66%) of the studies retrieved were conducted in the United States. Forty-four articles reported information on samples from Australia (2), Canada (1), China (1), Finland (1), Germany (4), Great Britain (13), Israel (2), Malaysia (1), Nigeria (1), the Netherlands (5), Poland (1), Republic of China (9), Russia (1), and two mixed samples. Researchers used convenience samples in the majority of studies and collected data from an average of 359 respondents. The most frequent setting of the research was the private sector industry ( $k = 87$ ; 74%), followed

by public service and government agencies ( $k = 25$ ; 21%), and the military ( $k = 6$ ; 5%).

### Meta-Analytical Results for Overall $r$ and $d$

An average correlation of .22 ( $p = .34$ ) for self-supervisor correlations was obtained when  $r$  was corrected for sampling error (sampling error and unreliability). The overall sample-size-weighted estimate of leniency in self-ratings yielded a mean difference of  $d = 0.32$  ( $\Delta = .49$ , after corrections for unreliability), indicating that self-ratings were at higher mean levels than supervisory ratings (see Table 1).<sup>7</sup> This difference in mean levels was highly significant. Omnibus tests of homogeneity revealed significant heterogeneity for both index  $r$  ( $Q = 460$ ,  $df = 114$ ,  $p = .000$ ) and  $d$  ( $Q = 1,586$ ,  $df = 88$ ,  $p = .000$ ). Thus, and because our moderator analyses were driven by theoretical predictions, the next step was to conduct moderator analyses.

### Moderator Analyses

*Collecting of cues: Position characteristics.* Position characteristics moderated both correlational and mean-level agreement. Higher levels of education were associated with lower correlational agreement (highly educated:  $r = .19$ ; white collar:  $r = .21$ ; blue collar:  $r = .33$ ), as was ONET job complexity (as a pseudo continuous covariate in a weighted least square regression,  $\beta_{\text{ONET}} = -.14$ ,  $SE = .01$ ,  $p = .025$ ). Tables 2 and 3 display effect size estimates for each of the five levels of the ONET-guided complexity rating. Note that a valid interpretation of results regarding “job complexity” requires simultaneous consideration of “job complexity” and “managerial position” (both job-type characteristics are confounded as managerial samples never fell into complexity Categories 1 and 2, but typically into Categories 3 and 4, sometimes Category 5). In a joint weighted least square regression, both covariates showed a significant negative relationship with correlational agreement ( $\beta_{\text{ONET}} = -.13$ ,  $SE = .01$ ,  $p = .04$ ;  $\beta_{\text{mgmt}} = -.15$ ,  $SE = .01$ ,  $p = .03$ ); that is, managerial position remained negatively associated with interrater correlations after ONET job complexity was controlled for. Within the subset of samples that reported information on educational degrees, managerial position did not explain variability in correlational agreement over and beyond educational attainment (see Table 2). An exploratory test of job type as a moderator of leniency revealed that both less standardized work environments and job complexity were associated with lower mean difference scores (blue collar:  $d = 0.59$ ; white collar:  $d = 0.25$ ; Job Zone 1 and 2:  $d = 0.58$ ; Job Zone 5:  $d = 0.38$ ; see Table 3 for detailed results). Within those white-collar samples that reported information on educational degrees, higher educational attainment was associated with lower levels of leniency (low percentages of master’s degrees:  $d = 0.75$ ; high percentages:  $d = 0.35$ ). Managerial samples yielded lower levels of leniency in self-ratings after educational level or ONET complexity were controlled for ( $d = 0.22$  within white-collar

<sup>7</sup> To test the independence of leniency and the magnitude of correlation coefficients empirically, the two effect size estimates were correlated for all samples that reported both measures of rater agreement ( $r = .04$ ,  $p = .39$ ;  $n = 388$ ). The resulting correlation confirmed that index  $r$  and index  $d$  varied very much independently.



Table 1  
Overall Results for Both Correlational and Mean-Level Agreement Between Self- and Supervisory Ratings (Effect Size Estimates  $r$  and  $d$ )

Estimate	$k$	$n$	$ES_{wt}$	$SE_{wt}$	95% CI	$ES_{pop}$	$Q_w$	95% cred.
Effect size $r$	115	37,752	.22**	.012	.20–.25	.34	459.65**	.30–.38
Effect size $d$	89	35,417	.32**	.037	.25–.39	.49	1586.34**	.38–.60

Note. Random effects model.  $k$  = number of coefficients;  $n$  = total number of respondents;  $ES_{wt}$  = sample size-weighted mean effect size (significance was assessed by the normal  $z$  distribution);  $SE_{wt}$  = standard error of the sample size-weighted mean effect size; CI = confidence interval;  $ES_{pop}$  = estimate of population effect size;  $Q_w$  = within-class test of homogeneity—a nonsignificant  $Q$  reflects homogeneity within effect sizes ( $df = k - 1$ ,  $k$  = number of studies); 95% cred. = 95% credibility interval.

\*\*  $p < .001$ .

samples, and  $d = 0.12$  within highly educated samples; in a regression with “ONET complexity” and “managerial position” as covariates, managerial position even remained the only significant predictor of index  $d$ :  $\beta_{ONET} = .04$ ,  $SE = .02$ ,  $p = .23$ ;  $\beta_{mgmt} = -.34$ ,  $SE = .02$ ,  $p = .00$ .

**Selection and integration of cues: Report format.** Among scale format properties, only the use of nonjudgmental ( $r = .46$ ) as opposed to judgmental performance indicators ( $r = .21$ ) showed a significant moderator effect regarding correlational agreement ( $Q = 38.36$ ,  $df = 1$ ,  $p = 0.000$ ). It is worth noting that scale length failed to influence correlational agreement: Single-item measures yielded correlations ( $r = .22$ ) that were almost identical to that of aggregated measures ( $r = .21$ ). Further exploratory analyses showed that within aggregated measures, composite scores that integrated a number of heterogeneous items (several performance dimensions) showed significantly higher self-supervisor correlations ( $r = .23$ ) than aggregated scores that were based on a set of homogeneous items ( $r = .18$ ;  $Q = 12.73$ ,  $df = 1$ ,  $p = .0004$ ).<sup>8</sup> Scale content also influenced self-supervisor correlations. Correlations tended to be lower for personality traits ( $r = .17$ ) than for ratings of task or contextual performance ( $r = .21$ ;  $Q = 8.28$ ,  $df = 1$ ;  $p = .0040$ ). Both scale format and scale content affected leniency in self-ratings. The use of social comparison scales reduced leniency in self-ratings from  $d = 0.33$  to  $d = 0.21$  ( $Q = 52.78$ ,  $df = 1$ ,  $p = 0.000$ ), whereas the use of neither nonjudgmental performance indicators nor behavioral item descriptions affected mean difference scores positively. Sorting scale labels into three categories of performance constructs yielded significantly different estimates of leniency for contextual performance ( $d = 0.32$ ), task performance ( $d = 0.27$ ), and trait labels ( $d = 0.45$ ). Finally, self-ratings for single-item measures of global performance ( $d = 0.34$ ) were significantly more lenient than single-item measures of performance in specific domains ( $d = 0.20$ ;  $Q = 12.34$ ,  $df = 1$ ,  $p = .0004$ ).

**Communication: Conditions of report.** The magnitude of correlation coefficients tended to depend on the expectation that ratings may be validated ( $Q = 5.57$ ,  $df = 1$ ,  $p = .0182$ ), but it was not affected by rating purpose once the influence of sample composition (managerial samples) was controlled for. In contrast, both rating purpose and expecting a validation affected leniency in self-ratings. Mean difference scores were significantly lower for research-based ratings ( $d = 0.24$ ) as compared with developmental ratings ( $d = 0.39$ ) and administrative ratings ( $d = 0.40$ ). Again, “managerial position” was controlled for as “developmental sam-

ples” consisted mostly of managers as respondents. Within managerial samples, research-based ratings still showed lower levels of leniency ( $d = 0.18$  vs.  $d = 0.33$ ). When a validation of ratings was expected, the amount of leniency in self-ratings decreased from  $d = 0.27$  to  $d = 0.23$ , but this tendency was not significant ( $Q = 1.88$ ,  $df = 1$ ,  $p = .1705$ ). Finally, leniency in self-reports differed between the subset of Asian samples ( $d = 0.09$ ), European samples ( $d = 0.17$ ), and samples stemming from the United States ( $d = 0.32$ ). Therein, the difference between U.S.-based samples and both European and Asian samples reached significance ( $Q = 38.74$ ,  $df = 1$ ,  $p = .0000$ ) as well as the difference between Asian and European samples ( $Q = 3.81$ ,  $df = 1$ ,  $p = .0488$ ).

## Discussion

The present overall meta-analytical estimate of the correlation between self- and supervisory ratings of .22 ( $r = .34$  when corrected for measurement error) is consistent with earlier meta-analyses (Conway & Huffcutt, 1997; Harris & Schaubroeck, 1988). It confirms the notion that correlational agreement in self- and other ratings of performance is of low to medium magnitude. The fact that the present overall effect size estimate is consistent with previous results is encouraging in that we do not have to assume that unexpected changes occurred in the database of primary studies. Our results estimate leniency in self-ratings to be at a lower level than the previous meta-analytical results provided by Harris and Schaubroeck (1988), who reported index  $d$  to be 0.70. Still, self-ratings were found to overrate supervisory ratings by one third of a standard deviation. To explore whether the considerable

<sup>8</sup> The aggregate ratings for which Viswesvaran et al. (1996) reported the highest alpha estimates were mostly sums of ratings across several performance dimensions. To further explore possible causes of low validities in aggregate measures, in a post hoc analysis, we divided the samples that reported validities for aggregate ratings into two sets. Composite scores that integrated several scales (which are then typically interpreted as measures of overall performance) were compared with aggregate measures of single dimensions. Moderator analysis showed that composite scores that aggregated ratings for various performance areas into a final score tended to reach higher correlations ( $r = .26$ ) than scores that aggregated items belonging to a single dimension ( $r = .18$ ) ( $Q = 3.75$ ,  $df = 1$ ,  $p = .053$ ). Composite scores based on several scales had integrated an average of 18.6 items, whereas dimensional aggregates were, on average, based on 5.6 items. Thus, composite scores may have a reliability advantage.

Table 2  
*Moderator Analyses for Correlational Agreement Between Self- and Supervisor Ratings*

Set	<i>k</i>	<i>r</i> <sub>wt</sub>	SE <sub>wt</sub>	95% CI	ρ	Q <sub>w</sub>	Q <sub>B</sub>	pQ <sub>B</sub>
Job type								
Blue collar	7	.33	.028	.279–.387	.54	46.62**		
White collar	95	.21	.006	.196–.219	.32	343.05**		
Combined	102	.21	.007	.211–.239	.32	408.81**	19.12	.0000**
Level of education, within white collar								
High education < 80%	21	.29	.016	.258–.320	.46	152.61**		
High education > 80%	15	.19	.012	.162–.211	.28	41.66**		
Combined	36	.23	.010	.206–.245	.35	220.58**	26.30	.0000**
Job complexity (ONET)								
Job Zone 1	3	.47 <sup>a</sup>	.042	.384–.549	.74	22.32**		
Job Zone 2	12	.22	.025	.171–.269	.35	9.20		
Job Zone 3	34	.19	.008	.178–.208	.30	92.27**		
Job Zone 4	18	.19	.011	.173–.216	.30	47.32**		
Job Zone 5	10	.29 <sup>a</sup>	.036	.220–.359	.44	20.93		
Combined	77	.20	.006	.192–.215	.31	239.97	47.93	.0000**
Managerial position, within white collar								
Nonmanagerial	30	.21	.017	.175–.243	.33	81.57**		
Managerial	30	.19	.010	.167–.207	.28	47.57**		
Combined	60	.19	.009	.175–.210	.29	130.38**	1.24	.1524
Managerial position, within high education								
Nonmanagerial	8	.19	.019	.158–.230	.28	40.29**		
Managerial	6	.18	.019	.138–.212	.27	0.77		
Combined	14	.19	.013	.159–.211	.28	41.57**	.51	.4738
Scale length								
Single item	47	.22	.009	.206–.240	.34	101.93**		
Aggregated Measure	80	.21	.006	.198–.221	.32	380.99**		
Combined	127	.21	.005	.204–.223	.33	484.61**	1.69	.1943
Aggregation								
Homogeneous	37	.18	.010	.163–.203	.32	71.01**		
Heterogeneous	46	.23	.007	.213–.240	.28	310.15**		
Combined	83	.21	.006	.201–.224	.34	393.89**	12.73	.0004**
Behavioral item labels								
Nonbehavioral	23	.21	.013	.179–.231	.31	55.03**		
Behavioral	11	.22	.029	.164–.277	.34	10.54		
Combined	34	.21	.012	.184–.232	.32	65.78**	.22	.6429
Social comparison								
Not given	90	.21	.006	.200–.222	.32	400.09**		
Given	16	.23	.017	.201–.268	.36	48.49**		
Combined	106	.21	.005	.203–.224	.32	450.23**	1.65	.1982
Performance indicators								
Judgmental	113	.21	.005	.197–.218	.32	437.84**		
Nonjudgmental	5	.46	.040	.382–.543	.71	8.45		
Combined	118	.21	.005	.201–.222	.34	484.64**	38.36	.0000**
Global vs. dimensional (single-item measures)								
Global	24	.21	.017	.177–.244	.33	77.06**		
Dimensional	34	.23	.009	.208–.244	.34	60.80**		
Combined	58	.22	.008	.207–.238	.34	138.49**	.63	.4281
Scale content								
Task performance	67	.20	.006	.190–.215	.31	161.37**		
Contextual performance	52	.22	.008	.207–.238	.34	150.17**		
Trait	18	.17	.011	.153–.197	.26	50.84**		
Combined	137	.20	.005	.195–.213	.31	374.39**	12.00	.0025**
Validation								
Not expected	94	.21	.006	.203–.225	.33	388.28**		
Expected	13	.26	.023	.225–.314	.41	22.05**		
Combined	107	.22	.006	.207–.228	.33	415.90**	5.57	.0182*
Purpose								
Administration	6	.27	.025	.222–.320	.42	20.90**		
Development	19	.16	.009	.147–.183	.24	41.65**	15.97	.0001**
Research	85	.22	.007	.212–.238	.35	355.74**	27.81	.0000**
Combined	110	.21	.005	.197–.218	.32	452.89**	34.60	.0000**

(table continues)

Table 2 (continued)

Set	<i>k</i>	$r_{wt}$	SE <sub>wt</sub>	95% CI	$\rho$	Q <sub>w</sub>	Q <sub>B</sub>	pQ <sub>B</sub>
Purpose (within managerial samples)								
Development	15	.18	.012	.156–.204	.26	24.61**		
Research	17	.20	.009	.181–.212	.30	43.90**		
Combined	32	.19	.007	.178–.207	.28	69.98**	1.47	.2257
Culture								
USA	77	.20	.006	.191–.213	.31	323.92**		
Europe	27	.23	.015	.199–.259	.34	48.60**		
Asia	11	.25	.021	.208–.292	.39	76.62**		
Combined	115	.21	.005	.198–.218	.32	455.93**	6.79	.0335*

Note. *k* = number of coefficients included in the meta-analysis;  $r_{wt}$  = sample size-weighted mean correlation; SE<sub>wt</sub> = standard error of the mean sample size-weighted effect size; CI = confidence interval;  $\rho$  = population correlation, corrected for artifacts; Q<sub>w</sub> = within-class test of homogeneity—a nonsignificant Q<sub>w</sub> reflects homogeneity within category; Q<sub>B</sub> = between-class test of homogeneity—a significant Q<sub>B</sub> indicates that classes differ significantly ( $df = m - 1$ ,  $m$  = number of categories), fixed-effects model, analysis with  $z$  transformation.

<sup>a</sup> Effect sizes for Job Zones 1 and 5 differ significantly from those for Job Zones 2–4 ( $p < .01$ ).

\*  $p < .05$ .  $p < .01$ .

difference between the present result and that of Harris and Schaubroeck (1988) reflects true changes in the database rather than computational differences, we conducted a separate analysis that included only research articles that had been published before 1988. This analysis in fact produced a higher overall sample size-weighted mean difference of  $d = 0.51$  ( $k = 22$ ;  $\Delta = .82$ ). In conclusion, it seems that more recent studies yield lower levels of leniency.

Our review demonstrated the relevance of three cognitive stages in the rating process, including the collecting of cues, the selection and integration of cues, and communication. Referring to the first stage, we analyzed several position characteristics (blue/white collar, managerial position, educational level, job complexity) that may particularly affect the ambiguity of cues for performance. Position type is a comprehensive category that determines various characteristics of an appraisal situation simultaneously, including the nature of cues that are available for later recall. In fact, job type was found in earlier meta-analyses (Conway & Huffcutt, 1997; Harris & Schaubroeck, 1988) to be nearly the only moderator of correlational agreement in performance ratings. Our results confirm the relevance of job complexity (assessed through educational level and ratings guided by the ONET database) and managerial position as moderators of correlational agreement. We tried to disentangle the influence of job complexity and managerial position; wherein our results depended on how job complexity was assessed. When educational level (high vs. low percentages of masters' degrees) was controlled for, managerial samples yielded correlation coefficients that were similar to those obtained from other samples. However, managerial samples indeed produced lower correlations when job complexity was controlled for by using the five-level ONET complexity measure. Specific domains of behavior that are characteristic of managerial work (interpersonal behavior, supervisory responsibility, working through others) may cause correlations to be lower, whereas job complexity, operationalized through the amount of preparation and experience needed, varies across managerial samples. But this could not be investigated further because the information available in primary studies concerning the nature of managers' responsibilities was limited. In an exploratory analysis, we also found evidence that position characteristics are related to mean difference scores. This

might be interpreted as evidence for category-based information processing in performance ratings. Higher educational level, higher ONET complexity ratings (Job Zones 3–5), and managerial positions were associated with reduced mean difference scores. Within samples of similar job complexity (educational level or ONET ratings), managers tended to yield lower mean difference scores. Further research is needed to determine the exact mechanisms underlying these findings.

Related to the second stage of the rating process, *selection and integration of cues*, we examined variables that influence how cues for performance are selected and integrated into a judgment depending on features of the instrument used (i.e., on scale format and scale content). Only rather strong approaches to alleviating conceptual disagreement, such as the use of nonjudgmental performance indicators, made a noticeable impact on correlational agreement. Regarding the influence of scale content, we found the use of traitlike scale labels to be associated with especially low levels of correlational agreement. Other approaches to reducing rater bias through scale design failed to positively influence self-other correlations (see also Landy & Farr, 1983). Contrary to the findings of Mabe and West (1982), this included the use of social comparison scales. Job performance is a complex construct that has many facets. It is possible that this complexity allows raters to successfully avoid negative comparisons with others and, unlike in other contexts (academic performance, sports), to strongly attribute better outcomes of others to situational advantages. An impressive example for the failure of performance ratings to follow the predictions of classic psychometric theory is our finding that single-item measures reached equal levels of correlational agreement as compared with aggregated scores (on average, aggregate ratings were based on 12.1 items). Similarly, a meta-analysis of Viswesvaran et al. (1996) on reliability estimates of performance ratings found that longer forms were associated with higher intrarater reliabilities (coefficient alpha) but not higher interrater reliabilities. Why might reliability advantages fail to affect interrater correlations positively? In Wherry and Bartlett's (1982) early model of the rating process, they distinguished three error components that arise in performance ratings: measurement error, areal bias, and overall bias. Measurement error, or random response error, can be reduced by adding extra items to a scale.

Table 3  
*Moderator Analyses for Mean Difference Scores Between Self- and Supervisory Ratings*

Set	<i>k</i>	<i>d<sub>wt</sub></i>	SE	95% CI	Δ	Q <sub>w</sub>	Q <sub>B</sub>	pQ <sub>B</sub>
Job type								
Blue collar	5	.59	.052	.488–.693	1.05	45.35**		
White collar	68	.25	.008	.237–.271	.38	930.12**		
Combined	73	.26	.009	.247–.281	.40	1015.99**	40.53	.0000**
Level of education, within white collar								
High education < 80%	13	.75	.040	.680–.835	1.13	375.28**		
High education > 80%	8	.35	.024	.298–.393	.55	56.90**		
Combined	21	.46	.021	.417–.498	.71	511.57**	79.39	.0000**
Job complexity (ONET)								
Job Zone 1 ( <i>k</i> = 2) and 2 ( <i>k</i> = 11)	13	.58 <sup>a</sup>	.040	.510–.667	.96	100.18**		
Job Zone 3	26	.22	.011	.196–.238	.32	288.68**		
Job Zone 4	11	.38	.020	.335–.415	.55	213.23**		
Job Zone 5	7	.38	.060	.268–.501	.58	62.64**		
Combined	57	.28	.009	.258–.294	.41	788.87**	123.92	.0000**
Managerial position, within white collar								
Nonmanagerial	30	.41	.017	.379–.444	.68	590.89**		
Managerial	31	.22	.010	.170–.240	.54	474.16**		
Combined	61	.27	.008	.256–.291	.58	1160.48**	95.44	.0000**
Managerial position, within high education								
Nonmanagerial	3	.39	.030	.332–.449	.56	21.18**		
Managerial	4	.12	.057	.007–.229	.18	16.10**		
Combined	7	.33	.027	.279–.383	.48	55.27**	17.99	.0000**
Behavioral item labels								
Nonbehavioral	17	.18	.013	.157–.209	.28	265.08**		
Behavioral	14	.16	.037	.087–.231	.25	64.33**		
Combined	31	.18	.012	.156–.204	.27	329.77**	.362	.5472
Social comparison								
Not given	78	.33	.010	.313–.351	.49	1459.92**		
Given	8	.21	.015	.177–.234	.32	75.49**		
Combined	86	.29	.008	.278–.310	.44	1588.19**	52.78	.0000**
Performance indicators								
Judgmental	87	.30	.008	.281–.312	.45	1595.63**		
Nonjudgmental	4	.32	.064	.199–.450	.49	29.20**		
Combined	91	.30	.008	.282–.313	.47	1625.02**	.19	.6669
Global vs. dimensional (single-item measures)								
Global	18	.34	.031	.284–.404	.56	204.75**		
Dimensional	29	.20	.012	.177–.224	.30	301.31**		
Combined	47	.22	.011	.197–.241	.34	525.03**	18.97	.0000**
Performance construct								
Task performance	59	.27	.009	.252–.287	.41	1310.93**		
Contextual performance	51	.32	.010	.297–.336	.47	607.21**	12.34	.0004**
Trait	18	.45	.024	.403–.497	.68	420.79**	26.14	.0000**
Combined	128	.30	.006	.289–.314	.45	2391.91**	52.97	.0000**
Validation								
Not expected	67	.27	.009	.256–.291	.42	1312.79**		
Expected	11	.23	.009	.161–.292	.32	128.21**		
Combined	78	.27	.033	.253–.288	.41	1442.87**	1.88	.1705
Purpose								
Administration	6	.40	.036	.332–.474	.62	79.08**		
Development	16	.39	.016	.357–.419	.54	164.25**		
Research	63	.24	.010	.222–.260	.38	1220.79**	61.54	.0000**
Combined	85	.29	.008	.271–.303	.43	1536.66**	72.54	.0000**
Purpose within managerial samples								
Development	13	.33	.023	.290–.378	.46	141.21**		
Research	14	.18	.012	.155–.202	.27	256.88**		
Combined	27	.21	.012	.192–.234	.31	434.94**	36.85	.0000**
Culture								
USA	56	.32	.009	.300–.335	.47	1107.28**		
Europe	14	.17	.023	.123–.211	.29	91.50**	38.74	.0000**
Asia	13	.09	.031	.029–.152	.14	131.92**	3.81	.0488*
Combined	89	.28	.008	.268–.299	.43	1409.82**	79.11	.0000**

*Note.* *k* = number of coefficients included in the meta-analysis; *d<sub>wt</sub>* = sample size-weighted mean difference; SE = standard error of the mean effect size; CI = confidence interval; Q<sub>w</sub> = within-class test of homogeneity — a nonsignificant Q<sub>w</sub> reflects homogeneity within category; Q<sub>B</sub> = between-class test of homogeneity — a significant Q<sub>B</sub> indicates that classes differ significantly (*df* = *m* – 1, *m* = number of categories). Fixed-effects model; weighted integration method (Hedges & Olkin, 1985); analysis with *z* transformation.

<sup>a</sup> Only the effect size estimate for Job Zones 1 and 2 differs significantly from those for the other Job Zones (*p* < .01).

\* *p* < .05. \*\* *p* < .01.



"Areal bias" (i.e., bias held against an individual as a performer in a specific area of behavior) can be reduced by integrating items that assess performance in various areas. In fact, in a post hoc analysis, we found that integrating heterogeneous items (from several scales), rather than homogeneous items (from a single scale), influenced rater agreement positively. "Overall bias" (i.e., a general bias against an individual regardless of performance domain) can only be reduced by integrating ratings made by various raters. To the extent that overall bias and areal bias are the dominating error components in performance appraisal, longer scales exert comparatively little influence on rater agreement. Besides, the use of ad hoc-designed scales is not uncommon in performance appraisal. Aggregating several scales or items with low intrarater consistency can reduce the variability of the scores so that the total variance of aggregated scores then turns out to be lower than that of scores based on fewer or even single items (Hoyt & Kerns, 1999). In the articles reviewed, coefficient alpha ranged from .32 to .95, with a mean of .73 for self-ratings, and from .51 to .96, with a mean of .85 for supervisory ratings, so that aggregate ratings were not consistently associated with higher levels of intrarater reliability.

Although scale properties mostly failed to influence interrater correlations, they have systematic effects on *mean-level discrepancies* between self- and other ratings: *Leniency* in self-ratings was moderated by scale format (social comparison scales) as well as by scale content (overall vs. dimensional ratings; task vs. contextual performance vs. traits). This confirms the notion that biased or self-deceptive information processing is pronounced for less well-defined ("global") performance dimensions. These facilitate a selective recall and weighing of information that is in accordance with the self-raters' self-concepts (self-enhancement bias) or give rise to impression management behavior (Baumeister & Jones, 1978; Farh & Dobbins, 1989). Contrary to our hypothesis, which referred to the perceived importance of task and contextual performance (Conway, 1999; Yammarino & Waldman, 1993), employees tended to overrate their contextual performance more than their task performance. The fact that contextual performance is likely to be less well defined seems to be of greater relevance to rating outcomes than its comparatively lower perceived importance. As expected, ratings for traits showed particularly high levels of leniency that were higher than those found for task, contextual, and overall performance. A possible explanation is that trait ratings address not only past behavior but also raters' expectations of current and future behavior (Wilson & Ross, 2001).

Finally, the third stage of the hypothesized rating process takes into account that ratings may be considered an act of *communication* that is directed to others, and is therefore related to situational conditions of report. Two important such variables could be included in the present meta-analysis: expecting a validation of self-ratings (e.g., through test results or a meeting with the supervisor) and rating purpose. The present study is the first to include employee development into the study of rating purpose and provides evidence of a purpose effect. Unexpectedly, results suggest that developmental performance ratings (within managerial samples) are inflated as compared with those found in research-based settings. In contrast, expecting a validation of ratings tended to be associated with more modest self-appraisals. Thus, developmental settings seem to elicit self-presentational concerns that do not operate in ways similar to the expectation that ratings will be

validated; rather, they elicit a more overly positive self-presentation. After all, research-based ratings seem to yield the lowest level of distortions in self-ratings despite the lower accountability of raters. Future research should further examine the demand characteristics that are present in developmental feedback settings and their determinants. Regarding effects of cultural background, we could not confirm in the present investigation a modesty bias (i.e., that self-ratings are lower than supervisory ratings) within a number of Asian countries (see Yu & Murphy, 1993), but our findings indicate that both mean-level and correlational agreement may be higher for less individualistic societies.

### Conclusions and Practical Implications

In the present study, we presented parallel analyses of mean-level and correlational agreement. Although correlational agreement was largely determined through the nature of cues that are available during early stages in the rating process (position characteristics and the use of scales with nonjudgmental performance indicators were the only moderators), mean difference scores seem to depend on features of the whole appraisal process, from the collecting of cues, their selection and integration, to the communication of evaluations. Given the visibility and the psychological implications of mean difference scores in performance ratings, meta-analytical evidence on factors that moderate their magnitude is instructive. Difference scores should only be interpreted and communicated back to recipients of feedback while taking into account that patterns of mean-level agreement depend on contextual features of the rating process, scale format, and scale content. More important, rating purpose affects the magnitude of mean difference scores, and results for respondents with different educational backgrounds may not be comparable. Given that we found that social comparison scales (scales with relative rather than absolute scale anchors) were able to reduce leniency in self-ratings, they should be used much more often than has been the case. Finally, and in agreement with many textbooks that have advised against their use, ratings for traits—but also for overall performance—elicit unnecessarily high levels of leniency in self-ratings. In summary, the increasing use of self-ratings in performance appraisals is a challenge given the negative implications of "discrepant feedback." The present meta-analysis provides standards of comparison that can guide the interpretation of feedback results as well as suggestions that may help guard against unnecessary discrepancies.

### Limitations and Future Research

Several limitations and challenges for future research exist within this study. First, the moderators examined in the present meta-analysis could not explain all the variation in effect sizes between samples (see the significant  $Q_W$  values that indicate within-group heterogeneity; Tables 2 and 3). Additional moderator variables may be relevant, and some of the coded moderator variables may lack precision. It will be important for future meta-analytical research that simultaneous analyses of all relevant covariates be conducted, which requires a still much larger set of samples (or that researchers report more complete information about their samples). Second, research in field settings has not accumulated a large enough database for addressing the effects of

individual differences, and besides, some individual-difference variables (such as rater gender) are typically confounded with other variables (such as the type of job sampled). To allow for a meta-analytical study of these effects, field researchers should control for confounds or should report effect sizes for subgroups of their samples separately and more regularly than has been the case. Also, more research in diverse Asian countries is needed to validate the generalizability of the "modesty hypothesis." In addition, theoretical explanations as to exactly how culture influences rating behavior should be advanced in the context of performance rating in organizations (see Amy, Abramson, Hyde, & Hankin, 2004; Heine, Lehman, Markus, & Kitayama, 1999). The evidence that could be accumulated is sufficient to already demonstrate the relevance of each of the three stages of the process model through exemplary moderator effects. Other moderator variables can be incorporated into the suggested taxonomy and be linked to the process model, but future research should aim at increasing researchers' understanding of why it is not possible to explain variability in effect sizes more completely.

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